Global Nuclear Energy Partnership (GNEP): A vision for nuclear-enabled peace and prosperity in the 21st century

The challenge of solving the mysteries of the atom has engaged many outstanding scientists from around the world. These have advanced fundamental nuclear science throughout the first half of the 20th century…and made giant strides in contributing to our understanding of the atom and atomic energy. Eventually, this knowledge resulted in the development of useful nuclear technology and weapons.

But it wasn't until December 1953 that world political leaders were challenged to cooperate in sharing and developing the peaceful uses of atomic energy. In a historic address to the United Nations, U.S. President Dwight Eisenhower unveiled his Atoms for Peace vision. He proposed to share the atomic knowledge and resources necessary to address society's medical, commercial, research and development opportunities, and to institute international security measures.

"The United States knows that peaceful power from atomic energy is no dream of the future. That capability, already proved, is here. Now—today," said Eisenhower.

The U.S. and world scientific communities responded quickly to the Atoms for Peace challenge. By July 1955, researchers in Idaho recorded a hugely significant achievement – when they powered an American town for the first time with electricity generated by nuclear energy.

A month later, scientists and policymakers from across the globe gathered in Geneva, Switzerland, for the first time at the United Nations International Conference on the Peaceful Uses of Atomic Energy.

Decades of progress ushered in a new era of nuclear power plant construction, and operation shifted into high gear in the United States and around the world.

By the turn of the 21st century, 104 nuclear power plants were generating 20 percent of America's electricity. More than 430 nuclear power plants in 31 countries were producing 16 percent of the world's electricity. None of these nuclear power plants release any emissions associated with global climate change.

While construction of new nuclear power plants ceased or slowed down in some countries, the tempo of new construction and operations, especially in Asia, has steadily increased.

Concerns about global climate change, energy security, and clean, safe, reliable electric power supply has stimulated strong global interest in new nuclear power facilities.

As new nations consider and undertake nuclear power programs, it is essential that they be assisted in adopting appropriate nuclear technology and fuel services. This approach can ensure that the goals of energy development and nuclear nonproliferation are met.

The Global Nuclear Energy Partnership is a U.S. initiative aimed at meeting those challenges and opportunities.

“Under the partnership, America is going to work with nations that have already got an advanced civilian nuclear energy program, such as France and Japan and Russia,” said President George W. Bush. “And we're going to use new technologies that effectively and safely recycle spent nuclear fuel. In other words, we're coming together to say, ‘how can we do a better job of reprocessing and recycling fuel?’”

The goals of this initiative are ambitious…but are achievable.

These goals include expanding U.S. domestic use of nuclear power; demonstrating more proliferation-resistant recycling that better secures sensitive materials and minimizes nuclear waste; developing advanced recycling reactors that will further mitigate wastes and enable a more efficient nuclear industry; establishing reliable fuel cycle services to guarantee fuel supplies globally; demonstrating right-sized reactors that could be safely used in developing countries; and developing enhanced nuclear safeguards to further secure and limit access to nuclear materials globally.

“If we are successful in implementing GNEP, we will be able to increase energy security, both here in the United States and abroad,” said DOE Secretary Samuel Bodman. “We’ll be able to encourage clean economic development around the world; and we’ll be able to improve the environment.”

The U.S. Government has contacted and briefed the governments of dozens of countries about GNEP. We have invited governments and industry to express their interest in working with us to advance the GNEP goals.

Strong responses from the global private sector demonstrated an interest in working with us to propose a path forward on recycling used nuclear fuel and on an advanced recycling reactor. Government laboratories in the U.S. were tasked with figuring out the best path forward on an advanced fuel cycle research facility.

Through partnerships with governments, industry and universities, the Department of Energy is pursuing a necessary path forward that will strengthen our nation’s future energy resources and contribute to global progress in these areas.

The Global Nuclear Energy Partnership is taking shape. Its progress is focused on achievable and vital goals.

The long-term success of GNEP can help pave the way to a world with more abundant, safe, clean and secure energy. These are the initial steps in that process, toward those goals.